



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,369	09/11/2003	Kazuhiko Yanagawa	HITA.0434	3014
38327	7590	05/17/2005	EXAMINER	
REED SMITH LLP 3110 FAIRVIEW PARK DRIVE, SUITE 1400 FALLS CHURCH, VA 22042			QI, ZHI QIANG	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/659,369	YANAGAWA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Mike Qi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/106,954.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

The claims 1-18 have been canceled and the new claims 19-26 have been added.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,097,467 (Fujimaki et al) in view of US 6,211,937 B1 (Miyachi et al).

Claims 19, Fujimaki discloses (col.4, line 65 – col.5, line 63; Figs.1B, 2-7) that a liquid crystal display device comprising:

- first and second substrates (1,13) with a liquid crystal layer (22) therebetween;
- a plurality of gate wires (4) and a plurality of drain line (5) formed on the first substrate (1);
- a counter electrode (7) (common electrode) and a pixel electrode (6) (the source electrode 6 functions as the pixel electrode) formed on the first substrate (1) and arranged in each of a plurality of pixels (the pixel is defined by the enclosed gate wires 4 and drain wires 5 as shown in Fig.3);
- a black matrix (23) formed on the second substrate (13).

Fujimaki does not explicitly disclose that the gate lines and an edge of the black matrix are elongated parallel to an initial orientation direction defined by an initial orientation angle, and a spacer is arranged over each of the gate lines in plane view.

However, Fujimaki discloses (col.4, line 65 – col.5, line 11; Fig.1B) that the gate line (4) and an edge of the black matrix (23) are elongated parallel to each other, and a spacer (19) is arranged over each of the gate lines (4). Even though the Fig.1B is a cross-sectional view of one part of a liquid crystal display device, but the gate line (4) and an edge of the black matrix (23) must be elongated parallel to each other in the plane view, and the spacer (19) must be over each of the gate lines (4) in the plane view.

Lacking limitation is such that the initial orientation direction defined by an initial orientation angle that is parallel to the gate line direction (i.e., X direction).

However, Miyachi discloses (col.7, lines 39 – 54; Fig. 4B) that the rubbing direction (6) (initial orientation direction) is parallel to the gate line (2) (X direction), and such that the orientation-disturbed region without overlapping the pixel electrode and does not affect display, so that a degradation of the display quality is not caused. Therefore, the gate lines and an edge of the black matrix are elongated parallel to an initial orientation direction defined by an initial orientation angle, i.e., the gate line direction (X direction) would eliminate the orientation-disturbance cause in a rubbing treatment (see col.2, lines 48-55).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the gate lines and an edge of the black matrix are

elongated parallel to an initial orientation direction defined by an initial orientation angle, i.e., the gate line direction (X direction) as claimed in claim 19 for eliminating the orientation-disturbance cause in a rubbing treatment.

3. Claim 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki and Myyachi as applied to claim 19 above, and further in view of US 5,745,207 (Asada et al).

Claim 21-25, lacking limitations are such that the pixel electrode has a first direction and second direction form different polarities to the initial orientation direction, i.e., the pixel has two directions of branches form two different directions from the initial orientation direction (X direction); and the two directions of branches are symmetrical to the X direction; and the liquid crystal layer has positive dielectric anisotropy; and having a bar part perpendicular to the X direction for connecting the two directions of branches; and having a third direction part between the two direction of branches.

However, Asada discloses (col.2, line 4 – col.6, line 54; Fig.2) that the pixel electrodes (4) are formed in a substantially herringbone shape, and the inclinations of the electrodes (i.e., the two directions of branches or two direction parts) are symmetrical with respect to the inflection points of the herringbone shape which also are symmetrical with respect to the X direction. Any part having different direction can be the first direction part and the second direction part, so that the herringbone shape having the two different direction part, and a third direction part such as the middle part between the two inclination part would be a third part, and also the function as a bar part to connect the two different direction parts in the middle and perpendicular to the X

direction. Asada also discloses (col.5, lines 61-64) that the liquid crystal having a positive anisotropic permittivity is filled between the two substrates. Asada indicates (col.3, lines 39-60) that by selecting the shape of the pixel electrode, the orientation of the liquid crystal molecules can be controlled desirably, and such pixel electrode having two different direction parts would compensate the coloring corresponding to the angle of view.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the pixel electrode having different parts and using positive dielectric anisotropy as claimed in claims 21-25 for achieving the coloring corresponding to the angle of view being compensated.

4. Claims 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki, Myyachi and Asada as applied to claims 19 and 21-25 above, and further in view of US 6,052,163 (Sung).

Claims 20 and 26, lacking limitation is such that the initial orientation angle (i.e., an initial orientation direction such as X direction) is identical for both the first substrate and the second substrate.

However, Sung discloses (col.2, lines 21-64; Fig.11) that the orientation films formed on the upper and lower substrates (10, 11) to align the liquid crystal molecules (36) are parallel to each other ( $\gamma$  direction parallel to  $\beta$  direction), so that the liquid crystal molecules (36) are in the same direction when no voltage is applied, i.e., the initial orientation direction is identical for both first and second substrates; and such structure, when no voltage is applied, the liquid crystal display element would be in a

dark state, and when the voltage is applied, the liquid crystal display would exhibit a bright state. Therefore, the initial orientation angle (initial orientation direction) is identical for both the first and second substrates would align the liquid crystal molecules homogeneously oriented in the same direction when no voltage is applied, and that is a basic principle to control the liquid crystal molecules for achieving image display.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the initial orientation angle is identical for both substrates as claimed in claims 20 and 26 for achieving the image display.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 19-26 (the amendment cancelled claims 1-18 and added claims 19-26) have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi  
May 12, 2005



DUNG T. NGUYEN  
PRIMARY EXAMINER